BOY C 40 PLANT

User's Manual - Use and Maintenance

Pumps for descaling, flushing and emptying-refilling of systems

Dear Customer, thank you for choosing a GEL descaling – flushing pump.

MANUAL
This manual is a safe guide for the use of the pump. Please read it carefully in all its parts before use.

This manual contains important information for the proper working and use of the equipment.

GEL SpA reserve the right to introduce any future changes without notice or replacement.

PRELIMINARY INSPECTION
Upon receipt of the pump, take it out from the carton and check it is in perfect condition. Also check that the data on the rating plate correspond to required ones. Any anomaly must be advised immediately.

CONTENTS

1 - INTRODUCTION page 4

2 - REGULATIONS – CE MARK page 4

3 - EXPLODED VIEW BOY C 40 PLANT page 5

4 - DESCRIPTION page 6

5 - TECHNICAL FEATURES page 7

6 - CUSTOMER SERVICE page 7

7 - USE page 8

8 - PRECAUTIONS page 11

9 - SAFETY INSTRUCTIONS page 11

10 - DESCALING CHEMICALS page 12

11 - FLUSHING CHEMICALS page 13

12 - PROTECTIVE CHEMICALS page 13

13 - WARRANTY TERMS AND AFTER-SALE ASSISTANCE CONDITIONS page 14

1 - INTRODUCTION

With time and, above all, temperature increase, magnesium and calcium salts contained in water precipitate in the form of microcrystals and settle on metallic surfaces of pipes, plant coils and heat exchangers, thus reducing flow rate and thermal efficiency.
To remove scale deposits it is necessary to circulate inside the pipes, by using GEL descaling pumps, the chemicals of the Boiler Cleaner line which react with scale, make it soluble and thus removed.
GEL produces a wide range of products for descaling systems and exchangers according to the materials used.
All products are made up of high quality base materials in order to get the best results and operate with the highest safety at the same time.

2 - REGULATIONS – CE MARK

Declaration of Conformity
The pumps are in conformity with the following European Directives, Laws and Regulations:

Low Voltage Directive:
73/23/EEC assimilated with E.O. no. 791 dated 18/10/77
93/68/EEC assimilated with E.O. no. 626 dated 25/11/96

CE

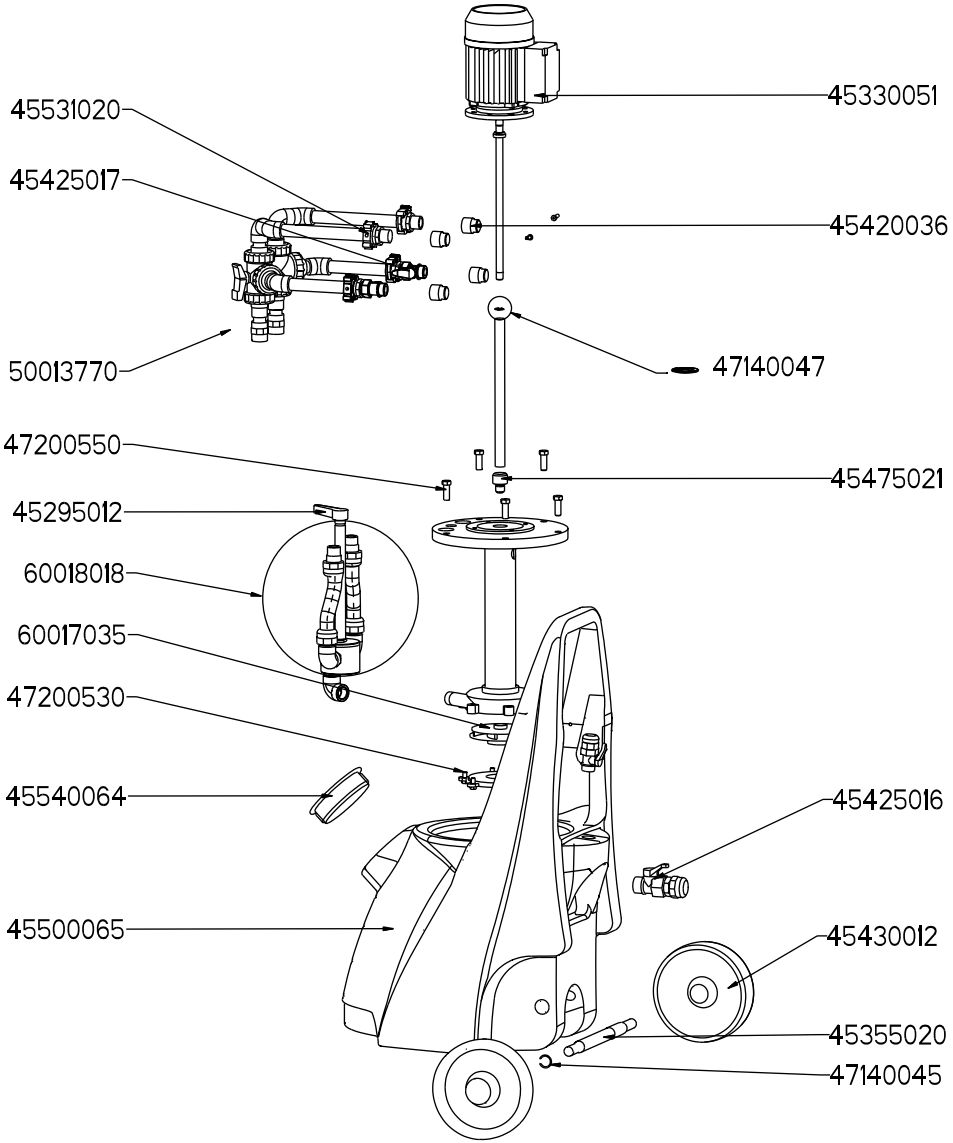
Electromagnetic Compatibility Directive:
89/336/EEC assimilated with E.O. no. 476 dated 04/12/92
92/31/EEC assimilated with E.O. no. 476 dated 04/12/92
93/68/EEC assimilated with E.O. no. 615 dated 12/11/96
93/97/EEC assimilated with E.O. no. 615 dated 12/11/96

Directives RoHS and WEEE:
02/98/EEC assimilated with E.O. no. 151 dated 25/07/05
02/96/EEC assimilated with E.O. no. 151 dated 25/07/05
03/108/EEC assimilated with E.O. no. 151 dated 25/07/05

QUALITY
The pump is built with high-quality acid resistant materials and submitted to severe operating tests.
Follow these instructions to avoid any operating and servicing problems.

3 - EXPLODED VIEW BOY C 40 PLANT

For enquiries on spare parts, please specify model of pump (BOY C 40 PLANT), item code, description and number of pieces desired.



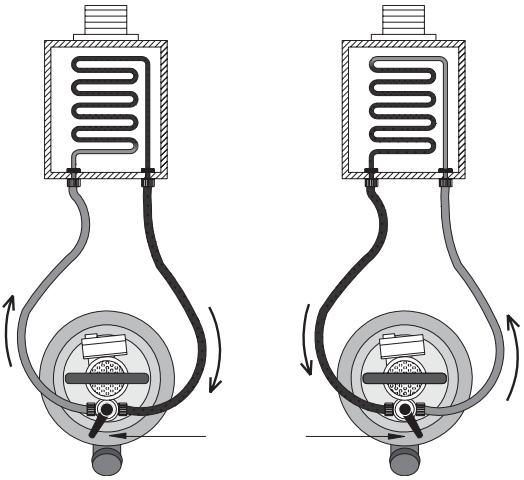
4 - DESCRIPTION

Vertical axis pump with tank and on-off valves for washing and flushing small systems or parts of big systems by circulating specific non-acid flushing chemicals and/or acid descaling solutions.

Exclusive design pump with tank. Highly portable format, with handle and wheels for easy handling.

Thanks to the automatic flow reverser device (GEL patent), it attacks scale on both sides, thus making descaling particularly effective and fast (as the normal dissolving action is combined with the detachment in flakes of scale, which is made friable by the double attack), even when pipes and exchangers are almost totally obstructed.

Deposits which can be removed with the pump BOY C 40 PLANT:
- scale deposits.
- calcium and silica deposits.
- iron and/or manganese oxides.
- iron bacteria and/or sulfate-reducing bacteria .
- organic substances and/or mucilages and algae.



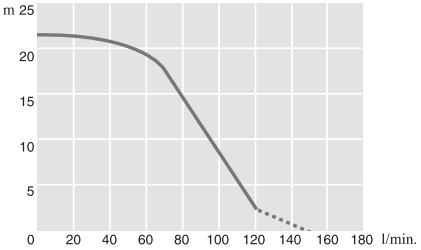
Clockwise circulation

Counterclockwise circulation

5 - TECHNICAL FEATURES

Vertical axis pump

Motor:	Hp 0,75
Power supply:	230 V - 50 Hz
Degree of protection:	IP 54
Max. temperature:	50° C
Flow rate:	150 l/min.
Head:	22 m (pump outlet)
Connections:	3/4 M
Reinforced hose with fitting:	1 M
Tank capacity:	40 l
Dimensions:	58 x 39 - H 91 cm
Weight:	18 Kg



6 - CUSTOMER SERVICE

For technical assistance please directly turn to your dealer or installer from which you have purchased the unit.

For enquiries on spare parts, please specify model of pump, item code, description and number of pieces desired.

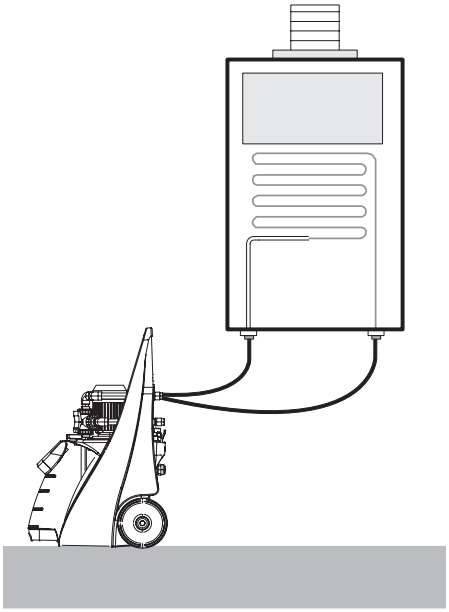
7 - USE

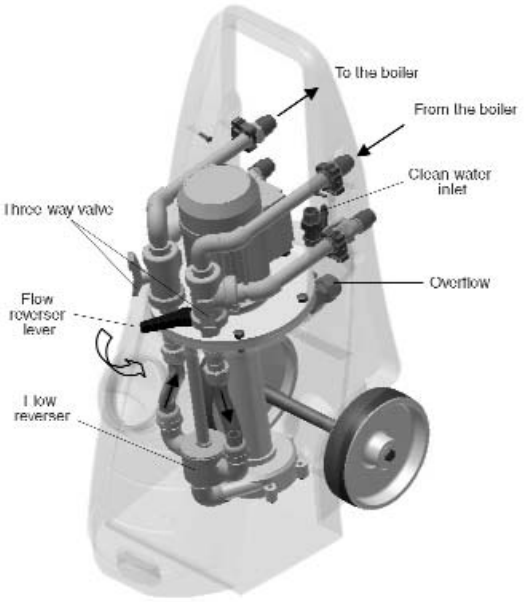
DESCALING WITH FLOW REVERSER

For descaling boilers and heat exchangers.
Fill the tank with enough descaling chemical, to be chosen among the ones of the BOILER CLEANER line according to the type of system, and enough water to ensure that the liquid level is between the minimum “MIN” and maximum “MAX” level.
TEMPERATURE OF THE DESCALING SOLUTION MUST NEVER EXCEED 50 °C.
Screw the outer ends of the flexible reinforced hoses to the equipment to be descaled.
Connect the power cable to a single-phase 230 V - 50 Hz power supply.

During operation, the tank cap should remain open to allow for the passage and elimination of the gas evolved during descaling. Check that the foam level does not exceed the maximum filling level.
Set the 2 three-way valves as shown in the figure below, close the clean water inlet tap and switch on the pump.
Rotate the flow reverser lever right and left regularly to speed up descaling and make it more effective.
When product colour starts changing, immediately refill, as product is exhausted.
Scale removal can be considered complete when bubbles no longer form in the return pipe and the solution is still acidic.
After descaling wash the system with the product BOILER CLEANER N for removing residual acidity, once the pump has been emptied of the product.

Important: Do not leave the descaling solution inside the tank for any reasons.





SYSTEM FLUSHING

Screw the outer ends of the flexible reinforced hoses to the equipment to be cleaned. Connect with a hose the clean water inlet tap to a water delivery point and the overflow tap and the pipe fitting of the three-way valve to the dump.
Connect the power cable to a single-phase 230 V - 50 Hz power supply.
During operation, the tank cap should remain open.
Fill the tank with enough water to ensure that the liquid level is between the minimum “MIN” and maximum “MAX” level (if necessary, refill with clean water through the “clean water inlet” tap).
Open the overflow tap and switch on the pump.
To flush the system, operate as follows:

1. empty the system of its content:
   - set the reversion lever (A) as shown in fig. 1 and 2;
   - set the three-way valve as shown in figure;

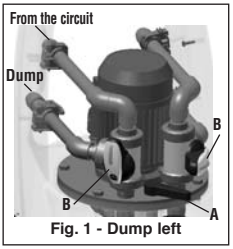


Fig. 1 - Dump left

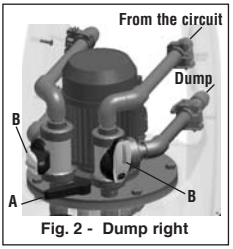


Fig. 2 - Dump right

2. prewash the system with clean water: keep the flow lever (A) and the 2 three-way valves (B) set as shown in fig. 3 and 4, until clean water is coming out of the system.

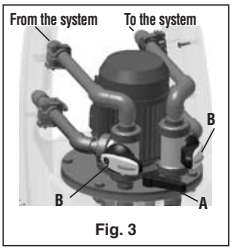


Fig. 3

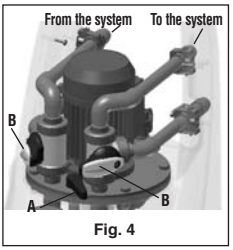


Fig. 4

3. flush the system by adding to the clean water inside the tank either BOILER CLEANER RR at a concentration of 3-5% of the total capacity of the system or G40 at a concentration of 2-3% of the total capacity of the system: keep valves and flow reverser set as shown in fig. 2.
   Rotate the flow reverser lever (A) right and left regularly to speed up flushing and make it more effective.

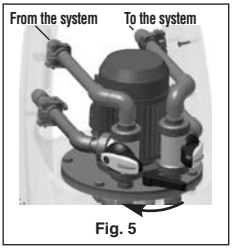


Fig. 5

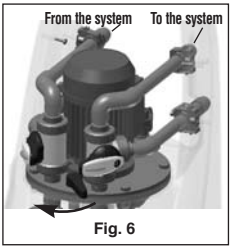


Fig. 6

4. empty the system and wash it with clean water: keep the flow reverser and the 3 three-way valves set as shown in fig. 7 and 8.

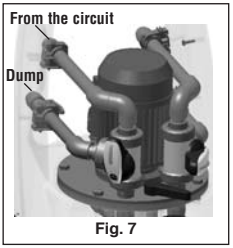


Fig. 7

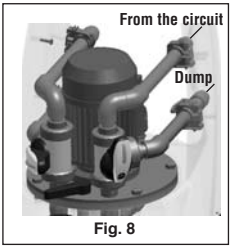


Fig. 8

SYSTEM PROTECTION

Fill the system and directly dose the protective chemical G10 at a concentration of 0,3% (0,3 litres per 100 litres of water) of the total capacity for an initial dosing.

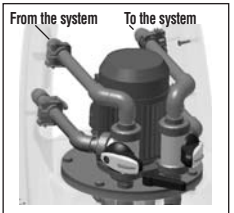


Fig. 9

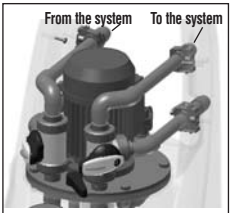


Fig. 10

SYSTEM EMPTYING – REFILLING

Screw the outer ends of the flexible reinforced hoses to the equipment to be emptied. Connect with a hose the clean water inlet tap to a water delivery point and the overflow tap and the pipe fitting of the three-way valve to the dump.
Connect the power cable to a single-phase 230 V - 50 Hz power supply.
During operation, the tank cap should remain open.

1. **System emptying:** set the flow reversion lever (A) and the 2 three-way valves (B) as shown in fig. 11 and 12.

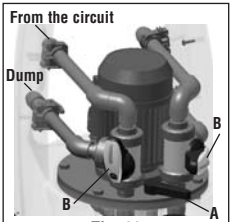


Fig. 11

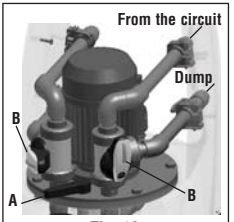


Fig. 12

2. **System refilling:** open the overflow tap and the “clean water inlet” tap.
   Set the flow reversion lever (A) and the 2 three-way valves (B) as shown in fig. 13 and 14.

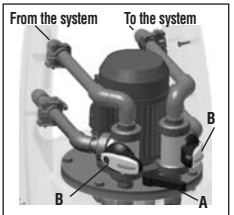


Fig. 13

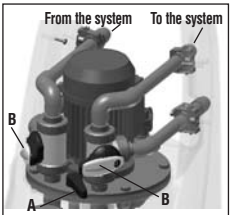


Fig. 14

8 - PRECAUTIONS

Only use GEL chemicals in order to ensure good working and avoid damaging the equipments.

Once the lifetime of the pump has expired, do not dispose of it with household waste. The pump must be recycled in authorized centres and can be assimilated to a household appliance.

During handling lift the pump and do not drag it in order to avoid damages to the tank.

Temperature of the descaling solution must never exceed 50 °C.

Flexible hoses and fittings can damage in time; make sure to check the seal whenever using the pump, as indicated in the pump preparation instructions.

9 - SAFETY INSTRUCTIONS

- Avoid using the pump in places where there are liquids, gases, flammable powders or with risk of explosion.
- Before plugging in the pump, make sure the switch is off.
- Only use CE-marked outlets.
- Use (CE) approved extensions, only if necessary.
- Do not use plug adapters. Do not carry out any modifications to the plug nor to the electrical cable.
- Pump shall always be kept in perfect efficiency.
- During maintenance operations, check the switch is off and the plug is not connected.
- Maintenance operations must be carried out by the authorized Technical Assistance Service.
- Only use GEL original spare parts.
- Do not carry out any modifications to the pump if not authorized by GEL Technical Department (ask for written authorization).
- Keep children and unauthorized persons away from the pump.
- Keep the pump out of reach of children and unauthorized persons.
- Do not use the pump if tired or under the effect of alcohol, medicines or drugs.
- When using the pump, wear overalls, do not wear jewellery, keep hair away from the pump.
- When handling descaling liquids, be very careful.
- It is necessary to use Individual Protection Equipment (IPE).

10 - CHEMICALS

IMPORTANT: Only use GEL chemicals in order to ensure good working of the equipment.

	Copper	Steel	Stainless steel	Aluminium	Brass	Tin	Light alloys	Galvanised iron
DESCALING CHEMICALS								
BOILER CLEANER D.E. Concentrated descaling liquid with powerful reaction for systems and heat exchangers.	•	•						
BOILER CLEANER D.P. Concentrated descaling liquid (non-fuming), with degreasing action, for systems and heat exchangers.	•	•						
BOILER CLEANER P. Concentrated descaling powder (non-corrosive, non-fuming) for systems and heat exchangers.			•	•	•	•	•	
BOILER CLEANER P.Z. Concentrated descaling powder (non-corrosive, non-fuming) for systems and heat exchangers, with special zinc inhibitor.			•	•	•	•	•	•
BOILER CLEANER E. Concentrated descaling liquid with very powerful reaction for systems and heat exchangers.	•							
BOILER CLEANER L.Z. Concentrated descaling liquid (non-corrosive, non-fuming) for systems and heat exchangers, with special zinc inhibitor.	•	•	•	•	•	•	•	•
BOILER CLEANER ECO Ecological descaling liquid for systems and heat exchangers.	•	•						
NEUTRALIZING CHEMICALS								
BOILER CLEANER N. Neutralizing powder to remove residual acidity after descaling systems and heat exchangers. Also suitable for neutralizing descaling chemicals after use, thus making it possible to drain them.	•	•	•	•	•	•	•	•

11 - FLUSHING CHEMICALS

G40 - SLUDGE REMOVER Non-acid flushing product for cleaning heating and solar systems. Able to restore the correct circulation in the system, thus keeping it efficient and optimising energy consumption.	suitable for all materials
BOILER CLEANER R.R. Rapid flushing product containing complexing, chelating and dispersing agents, additives, anti-foam agents and corrosion inhibitors.	suitable for all materials

12 - PROTECTIVE - ANTIFREEZE CHEMICALS

BOILER CLEANER AP Anti-scale anti-corrosion concentrated protective liquid for closed-circuit heating systems. Reduces gas and noise formation on copper pipes and aluminium radiators. To be added to the water of new systems and in old systems, after flushing with G40 or BOILER CLEANER RR.
G10 - CORROSION INHIBITOR WITH ALGICIDE ACTION Product inhibiting corrosion and formation of scale and algae in all types of heating systems, including those with aluminium radiating elements and floor heating systems. Non-acid product able to preserve system efficiency and optimise energy consumption.
G20 - NOISE REDUCER Product reducing formation of noise inside heating systems, particularly those with aluminium radiating elements. Non-acid product able to preserve system efficiency and optimise energy consumption.
G50 - ANTIFREEZE PRODUCT WITH CORROSION INHIBITOR Product guaranteeing protection against freeze and inhibiting corrosion and formation of scale deposits in all types of heating systems, including those with aluminium radiating elements. Able to keep the system efficient and optimise energy consumption.
GEL TERMOL AT Antifreeze atoxic colourless concentrated liquid based on propylene glycol with corrosion inhibitors.
GEL TERMOL AT - 20 Antifreeze atoxic colourless ready-to-use liquid based on propylene glycol with corrosion inhibitors.
GEL TERMOL GV Antifreeze light-green concentrated liquid based on ethylene glycol. WITH SPECIAL LONG-TERM CORROSION INHIBITORS
GEL TERMOL Antifreeze blue-coloured permanent concentrated liquid based on ethylene glycol with corrosion inhibitors.
GEL TERMOL - 40 Antifreeze blue-coloured ready-to-use liquid based on ethylene glycol with corrosion inhibitors.
GEL TERMOL - 20 Antifreeze blue-coloured ready-to-use liquid based on ethylene glycol with corrosion inhibitors.

13 - WARRANTY TERMS AND AFTER-SALE ASSISTANCE CONDITIONS

GEL guarantee that the equipments sold are free from designing, manufacturing and material defects, under normal operating conditions and according to the directions contained in the instructions manual supplied with the equipment.

In compliance with the directive 1999/44/CE valid in the EEC countries, the warranty rights apply only to the purchaser. The warranty supplied by GEL leaves these rights unprejudiced.

GEL S.p.A., placed in Via Enzo Ferrari, 1 Castelfidardo (AN) – Italy, guarantee the equipments against any conformity defects appearing within 24 (twenty-four) months from the purchase date, even when warranty operations have been carried out during this period, if only proved by a document.

The warranty covers all components of the equipment and provides for the repairing or, if necessary, the free replacement of those parts that, according to your Dealer, have conformity defects.

The warranty does not cover the aesthetic parts and the parts subject to wear and tear, nor does it cover all damages or failures whose cause is not due to the manufacturer, such as: transport, wrong installation or maintenance, tampering, sudden changes of electric voltage and/or hydraulic pressure, thunderbolts, corrosions, excess of humidity, accidental bumps or events beyond our control.

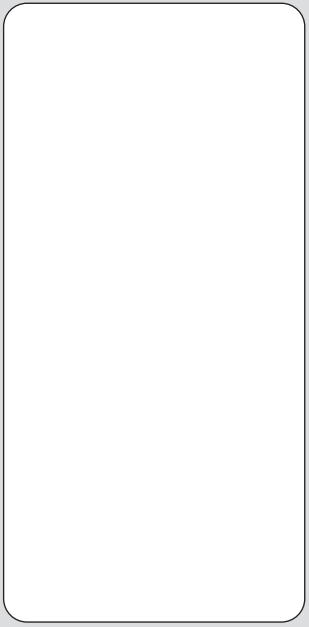
The warranty is valid only if the equipments have been installed, used and properly maintained according to all directions supplied by GEL in the instructions manual attached to the equipment.

Should any conformity defects of the product be found during the warranty period, the Customer shall notify the Dealer to agree upon the terms of repairing and/or replacing of the product.

The after-sale assistance service under warranty is always supplied by your Dealer.

Claims.

For claims, please contact your dealer.



REV. 01/08